

TRANSLATION

PATENT COOPERATION TREATY

PCT

INTERNATIONAL PRELIMINARY REPORT ON PATENTABILITY

(Chapter II of the Patent Cooperation Treaty)

(PCT Article 36 and Rule 70)

Applicant's or agent's file reference 2003P15367WO	FOR FURTHER ACTION		See Form PCT/IPEA/416
International application No. PCT/EP2004/053709	International filing date (<i>day/month/year</i>) 27.12.2004	Priority date (<i>day/month/year</i>) 06.02.2004	
International Patent Classification (IPC) or national classification and IPC G05B17/02 B21B37/74			
Applicant SIEMENS AKTIENGESELLSCHAFT			

<p>1. This report is the international preliminary examination report, established by this International Preliminary Examining Authority under Article 35 and transmitted to the applicant according to Article 36.</p> <p>2. This REPORT consists of a total of _____ sheets, including this cover sheet.</p> <p>3. This report is also accompanied by ANNEXES, comprising:</p> <p>a. <input checked="" type="checkbox"/> (<i>sent to the applicant and to the International Bureau</i>) a total of 8 sheets, as follows:</p> <p><input checked="" type="checkbox"/> sheets of the description, claims and/or drawings which have been amended and are the basis for this report and/or sheets containing rectifications authorized by this Authority (see Rule 70.16 and Section 607 of the Administrative Instructions).</p> <p><input type="checkbox"/> sheets which supersede earlier sheets, but which this Authority considers contain an amendment that goes beyond the disclosure in the international application as filed, as indicated in item 4 of Box No. I and the Supplemental Box.</p> <p>b. <input type="checkbox"/> (<i>sent to the International Bureau only</i>) a total of (indicate type and number of electronic carrier(s)) _____, containing a sequence listing and/or tables related thereto, in computer readable form only, as indicated in the Supplemental Box Relating to Sequence Listing (see Section 802 of the Administrative Instructions).</p>

<p>4. This report contains indications relating to the following items:</p> <p><input checked="" type="checkbox"/> Box No. I Basis of the report</p> <p><input type="checkbox"/> Box No. II Priority</p> <p><input type="checkbox"/> Box No. III Non-establishment of opinion with regard to novelty, inventive step and industrial applicability</p> <p><input type="checkbox"/> Box No. IV Lack of unity of invention</p> <p><input checked="" type="checkbox"/> Box No. V Reasoned statement under Article 35(2) with regard to novelty, inventive step or industrial applicability; citations and explanations supporting such statement</p> <p><input type="checkbox"/> Box No. VI Certain documents cited</p> <p><input type="checkbox"/> Box No. VII Certain defects in the international application</p> <p><input checked="" type="checkbox"/> Box No. VIII Certain observations on the international application</p>
--

Date of submission of the demand	Date of completion of this report
Name and mailing address of the IPEA/EP	Authorized officer
Facsimile No.	Telephone No.

INTERNATIONAL PRELIMINARY REPORT ON PATENTABILITY

International application No.
PCT/EP2004/053709

Box No. I Basis of the report

1. With regard to the **language**, this report is based on the international application in the language in which it was filed, unless otherwise indicated under this item.

This report is based on translations from the original language into the following language _____, which is the language of a translation furnished for the purposes of:

 - international search (Rule 12.3 and 23.1(b))
 - publication of the international application (Rule 12.4)
 - international preliminary examination (Rule 55.2 and/or 55.3)
2. With regard to the **elements** of the international application, this report is based on (*replacement sheets which have been furnished to the receiving Office in response to an invitation under Article 14 are referred to in this report as "originally filed" and are not annexed to this report*):

the international application as originally filed/furnished
 the description:
 pages 1-29 _____ as originally filed/furnished
 pages* _____ received by this Authority on _____
 pages* _____ received by this Authority on _____
 the claims:
 nos. _____ as originally filed/furnished
 nos.* _____ as amended (together with any statement) under Article 19
 nos.* 1-15 _____ received by this Authority on 05.12.2005 with letter
of 30.11.2005
 nos.* 16-20 / 21 _____ received by this Authority on 23.03.2006 w letter 21.03.
2006 / 10.04.2006 w fax

the drawings:
 sheets 1/10-10/10 _____ as originally filed/furnished
 sheets* _____ received by this Authority on _____
 sheets* _____ received by this Authority on _____

a sequence listing and/or any related table(s) – see Supplemental Box Relating to Sequence Listing.
3. The amendments have resulted in the cancellation of:

the description, pages _____
 the claims, nos. _____
 the drawings, sheets/figs _____
 the sequence listing (*specify*): _____
 any table(s) related to sequence listing (*specify*): _____
4. This report has been established as if (some of) the amendments annexed to this report and listed below had not been made, since they have been considered to go beyond the disclosure as filed, as indicated in the Supplemental Box (Rule 70.2(c)).

the description, pages _____
 the claims, nos. 16-20 _____
 the drawings, sheets/figs _____
 the sequence listing (*specify*): _____
 any table(s) related to sequence listing (*specify*): _____

* If item 4 applies, some or all of those sheets may be marked "superseded."

INTERNATIONAL PRELIMINARY REPORT ON PATENTABILITY

International application No.
PCT/EP2004/053709

Box No. V Reasoned statement under Article 35(2) with regard to novelty, inventive step or industrial applicability; citations and explanations supporting such statement

1. Statement

Novelty (N)	Claims	1–21	YES
	Claims	_____	NO
Inventive step (IS)	Claims	1–21	YES
	Claims	_____	NO
Industrial applicability (IA)	Claims	1–21	YES
	Claims	_____	NO

2. Citations and explanations (Rule 70.7)

1 Reference is made to the following document which was cited in the application:
D1: DE 101 29 565 A1 (SIEMENS AG) 9 January 2003
(2003-01-09)

2 Claim 1

D1 is considered to be the prior art closest to the subject matter of claim 1. It discloses the features which are defined in the preamble of claim 1.

The subject matter of claim 1 thus differs from the known method by virtue of the features which are defined in the characterizing part.

The subject matter of claim 1 is thus novel (PCT Article 33(2)).

The problem addressed by the present invention can therefore be considered that of improving the modelling of the temporal temperature profile of steel during cooling.

INTERNATIONAL PRELIMINARY REPORT ON PATENTABILITYInternational application No.
PCT/EP2004/053709**Box No. V** **Reasoned statement under Article 35(2) with regard to novelty, inventive step or industrial applicability; citations and explanations supporting such statement**

The solution to this problem proposed in claim 1 of the present application involves an inventive step (PCT Article 33(3)) for the following reasons:

The defined steps of the modelling method are not disclosed in any of the known documents and do not belong to the general knowledge of a person skilled in the art either:

- the modelling of the states comprises a local distribution of the concentration of at least one alloy element which is mobile in the steel
- the local proportions of the phases of the steel (austenite and at least one second phase) are determined by the extent to which the phase boundary is displaced,
- wherein this displacement of the phase boundary is ascertained by determining the change in the distribution of the concentration of this alloy element by solving a Stefan problem.

3 Claims 2 to 17

Claims 2 to 17 are dependent on claim 1 and thus likewise meet the PCT requirements for novelty and inventive step.

4 Claims 18 and 19

The subject matters of claims 18 (data storage medium) and 19 (computer) allow the methods according to one of claims 1 to 17 to be carried out using the stored computer program.

INTERNATIONAL PRELIMINARY REPORT ON PATENTABILITYInternational application No.
PCT/EP2004/053709**Box No. V** **Reasoned statement under Article 35(2) with regard to novelty, inventive step or industrial applicability; citations and explanations supporting such statement**

These subject matters are thus novel and inventive (PCT Article 33(2) and (3)).

5 Claims 20 and 21

Claims 20 and 21 are dependent on claim 19 and thus likewise meet the PCT requirements for novelty and inventive step.

6 The subject matters of claims 1-21 are industrially applied in the cooling of steel.

INTERNATIONAL PRELIMINARY REPORT ON PATENTABILITY

International application No.

PCT/EP2004/053709

Box No. VIII Certain observations on the international application

The following observations on the clarity of the claims, description, and drawings or on the question whether the claims are fully supported by the description, are made:

1 The application does not meet the requirements of PCT Article 6 because claim 19 is not clear.

1.1 The use of the expression "*can be carried out*" renders the subject matter of claim 19 unclear. It is not clearly defined whether and when the modelling method is carried out when the computer program is called. For clarification, the wording "*is carried out*" could be used.

INTERNATIONAL PRELIMINARY REPORT ON PATENTABILITY

International application No.

PCT/EP2004/053709

Supplemental Box

In case **the space in any of the preceding boxes is not sufficient.**

Continuation of:

Box I

The amendments to claim 19 received by fax on 10 April 2006 with the letter of 10 April 2006 introduce substantive matter which, contrary to PCT Article 34(2) (b), goes beyond the disclosure in the international application as filed. The amendment is as follows:

The expression "*can be carried out*" has been replaced with "*is carried out*".

However, this amendment is not supported by the originally filed application and is therefore not allowed.